

## BULLETIN

The energy and planning resource for Western utilities

## CAREER PROSPECTS SUNNY FOR GRADUATES OF SOLAR READY VETS PROGRAM

**W**estern customers Fort Carson in Colorado and Hill Air Force Base in Utah are participating in a Department of Energy (DOE) program to prepare military veterans for careers in the solar power industry.

Solar Ready Vets, part of DOE's SunShot Initiative, is an intensive six-week training course to teach transitioning service members and vets about photovoltaics (PV). DOE launched the pilot program in 2014 because translating military experience into civilian jobs is one of the toughest challenges veterans face. The solar industry is adding jobs 10 times faster than the rest of the economy, and many veterans already have a strong background in basic technical skills that will help them succeed in the field.

### Working with leaders

Ft. Carson, Camp Pendleton in California and Naval Station Norfolk in Virginia were the first facilities to offer the course. In April, President

Obama visited Hill Air Force Base, the fourth training site to announce that DOE is expanding Solar Ready Vets to a total of ten military bases. DOE will work with the Department of Defense to choose the remaining six facilities. Strength of the local solar market and the training capacity of nearby Solar Instructor Training Network (SITN) partners will factor into the decision.

Located in a state with a thriving solar industry, Ft. Carson Army Garrison near Colorado Springs was a natural choice to host Solar Ready Vets. Western worked with Ft. Carson and eight other federal agencies in 2007 to finance and install a 2-megawatt (MW) PV system on the base, the largest array on an Army facility at the time. The array is part of the base's sustainability program that addresses energy and water use, transportation, waste and local habitat.

Renewable energy is also part of the power supply at Hill Air Force Base. The Air Force built its first landfill gas facility at Hill in 2006, and has since expanded it to three generators producing 2.3 MW annually. A large solar array, commissioned in 2009, contributes another 220 kilowatts of clean power to base operations.

### Theory backs up practice

The Ft. Carson pilot class of 23 trainees studied PV systems from the basics of electricity to design to installation. The course also covered battery backup and storage, permitting and basic troubleshooting, and included the "why" behind the practical steps. At the end of the course, they earned their OSHA 10-hour construction card



**R.J. Willing, left, Army veteran, and Spc. Paul Largett, 704th Brigade Support Battalion, 4th Infantry Brigade Combat Team, 4th Infantry Division, install a solar inverter which takes DC electricity from the solar array and turns it into AC electricity to power a household. (Photo by Fort Carson Army Garrison)**

and took the North American Board of Certified Energy Practitioners Entry Level Exam. All 23 successfully passed the NABCEP certification.

More than half the training involved hands-on learning, using a field lab created by lead instructor Solar Energy International (SEI). One of the founding members of the SITN, the Paonia, Colorado-based, solar education organization conducted the trainings at Ft. Carson and Camp Pendleton. "We are very excited to be involved in this program," said Chris Turek, SEI director of Marketing and Alumni Outreach.

*See SOLAR READY VETS, page 2*

## WHAT'S INSIDE

REAP funds rural energy projects ...3

SMUD earns smart grid award .....4

Dept. of Interior invests in water conservation projects .....5

New Cooling Tip Sheet available...6

Nominations open for 3i awards...7

Efficient clothes dryer webinar ....8

## Solar Ready Vets from page 1

"Job training is an important part of military service, and the skills that Solar Ready Vets teaches can be valuable for active as well as transitioning service members."

As a post-911 veteran himself, Turek has a strong personal connection to the program. After completing his degree and working in other related industries for a few years, he joined SEI. "Vets are used to working as part of a team that places high priority on safety and results, which makes the solar industry a great fit for them," he said.

### Out of service, into jobs

The solar industry clearly agrees, with SolarCity, Vivint Solar, SunRun, SunPower and SunEdison lining up to interview participants following their graduation. "Several graduates have received job offers already," said Ft. Carson Career Skills Program Manager Sherry Jenkins. "Some are waiting until they get closer to their separation dates to interview but they excited about opportunities that await them."

DOE lined up the solar companies to interview graduates, but Jenkins said local businesses could also contact the base if they are interested in conducting interviews with the graduates.

### ENERGY SERVICES BULLETIN

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**ENERGY SERVICES**  
Western Area Power Administration



**Spc. Briceldo Rosas, left, 2nd Battalion, 12th Infantry Regiment, 4th Infantry Brigade Combat Team, 4th Infantry Division, works with Capt. Karl Gustke, 1st Attack Reconnaissance Battalion, 4th Combat Aviation Brigade, 4th Inf. Div., on a simulated rooftop to install flashing for a solar array installment. (Photo by Fort Carson Garrison)**

Turek pointed out that the training is applicable for all types of solar-related businesses. "The skills we teach prepare graduates for positions in management, PV installation and sales, as well as technical positions," he said. "Utilities that are looking to scale up their solar programs could definitely find qualified candidates here."

### Interest, opportunities growing

Ft. Carson kicked off a second training May 12 with 24 students, and another one is being planned for August. Class size is limited to 25 participants, and the first one was a bit of a tough sell, Jenkins acknowledged. "Now word is getting out and the classes are filling rapidly," she said, adding, "We have our first women members in the current class, and they tell me that they love it."

Hill AFB plans to offer training this fall. The free program is open to active military personnel who are within a few months of moving to veteran status. DOE further screens for applicants with good math skills and some electricity or construction experience. In this initial phase, participants are selected only from the bases where the training is held. However, current

veterans may participate now in solar skills training through their regional SITN educational partners. The network consists of more than 400 community colleges across the country.

Utilities with job openings for Solar Ready Vets may contact the base education or transition office near them:

#### ■ Ft. Carson (Army)

Sherry Jenkins  
Career Skills Program Coordinator  
Directorate of Human Resources  
1675 Long Street, Bldg. 1117, Room 124  
Ft. Carson, CO 80913  
Office: 719-526-8075 DSN: 691-8075

#### ■ Camp Pendleton (Marines)

Scott Pile  
Director, Personal and Professional Development  
US Marine Corps-Camp Pendleton Transition Readiness:  
Mr. Derrick Christovale; 951-725-6652  
Education Center:  
Ms. Pat Jeffress; 951-725-6414  
Career and Personal Readiness:  
Ms. Veronica Largent; 951-725-6320

Jobs can also be posted through on-base hiring fairs and military employment channels. ⚡

# RURAL CUSTOMERS DEVELOP EFFICIENCY, RENEWABLE PROJECTS WITH REAP FUNDS

**T**he June 30 deadline is approaching for the final round of grants and guaranteed loan financing from the Department of Agriculture's (USDA) Rural Energy for America Program (REAP).

REAP funding helps agricultural producers and rural small businesses purchase and install renewable energy systems or make energy efficiency improvements. Western customers are among the electric cooperatives, communities and businesses that have benefited from the program.

## Making difference in Midwest

Agricultural communities in the Midwest face many economic challenges in spite of the region generally enjoying low-cost power. Since the program's inception in 2002, REAP has contributed to the economic health of this part of the country by helping farmers and small businesses reduce operating expenses. Rural electric cooperatives have used REAP funding to diversify their resource portfolios.

Nobles Cooperative Electric in Worthington, Minnesota, was an early REAP recipient. When the state legislature began considering a statewide renewable electricity standard, the co-op applied for a grant to install a utility-scale wind turbine in its territory. In addition to the \$500,000 REAP grant, Nobels received \$2.5 million through Clean Renewable Energy Bonds from the National Rural Utilities Cooperative Finance Corporation (CFC) to fund renewable energy projects. General Manager Richard Burud noted that the CFC and USDA assistance made the difference between doing the project and not doing the project.

## Increasing irrigation efficiency

In the dry western farming region of all-public power Nebraska, growers rely on irrigation systems that use great quantities of both water and energy. Many irrigation systems are powered



**NPPD helped agricultural customers in western Nebraska apply for USDA REAP funds to convert their irrigation pumps from diesel motors to efficient electric motors. Electric pumping systems are also more compatible with remote management technology. (Photo by Nebraska USDA Rural Development Office)**

by diesel engines, which have high carbon emissions and expose farmers to volatile fuel costs. Nebraska Public Power District, one of the state's largest electric providers, teamed up with USDA Rural Development staff in 2004 to help more than 200 farmers receive REAP (then called Section 9006) grants to replace diesel or propane-fueled irrigation motors with electric motors.

Close cooperation was critical to the program's success. Rural Development did extensive outreach to growers, focusing on irrigation projects, while NPPD staff conducted the energy assessments needed to apply for the grants. "We continue to support REAP projects by doing energy audits for applicants," explained NPPD Energy Efficiency Consultant Ron Rose. "Audits performed by a certified energy manager earn more points for the applicant in the USDA scoring process."

The farmers did their part too, working through the application process to receive grants that averaged around \$7,000 per system. "The grants

don't pay for the whole project, but they lower the payback period considerably," acknowledged Rose.

Given the fuel prices at the time, farmers were able to save as much as 30 percent of their irrigation energy costs by converting from diesel to electric. Rose noted that even though fuel prices have dropped, the electric pumping systems are still popular because remote management technology works better with electric equipment. "The farmers are able to control irrigation from their smart phones or tablets," he said.

## Helping customers helps utility

The REAP project stabilized energy cost for the applicants, gave them greater control over their systems and has encouraged some growers to move to solar powered pumps. Investing in energy efficiency can increase the income for a farm or business, and buying and installing new equipment creates economic activity in the community.

*See REAP FUNDS, page 6*



# GREENTECH MEDIA RECOGNIZES SMUD AS GRID INNOVATOR

**S**acramento Municipal Utility District (SMUD) was among the 20 companies to receive the Grid Edge 20 award for contributions to the transformation of the U.S. electrical grid.

Sponsored by GreenTech Media Research, the award highlights energy-related businesses using new products, disruptive strategies and forward-looking vision to shift our traditional, centralized grid to a more distributed, responsive system. SMUD earned the award for implementing Space-Time Insight's (STI) geospatial and visual analytics software to improve the analysis and management of data from its smart grid devices.

## Good-news-bad-news scenario

The project is part of SMUD's SmartSacramento initiative to improve the reliability and efficiency of the grid and to give customers more control over their energy use. The first step was the installation of 630,000 new smart meters capable of two-way wireless communication, which allowed SMUD customers to see their daily and hourly energy use on the web. The meters also enabled the utility to remotely read use, and set the stage for smarter thermostats, home energy management systems, energy-efficient smart appliances and time-of-use (TOU) rates.

Customer reaction to the installation was overwhelmingly positive. "The business case for smart meters was based on operational efficiencies rather than energy savings, but the TOU rates can drive efficiency improvements," explained Jim Parks, SMUD program manager for energy research and development. "In the pilot project, customers on TOU or CPP [critical peak pricing] rates, or both, were able to reduce their peak energy use by 6 to 25 percent during peak periods."

SMUD also installed dozens of other intelligent grid-connected assets to provide data on the condition and performance of equipment to improve



The electronic wall map in SMUD's operational center gives operations staff an overview of the grid right down to cameras like the one on the Meadowview-Mack substation.

system reliability. All that data, however, came with a downside: figuring out how to incorporate it into grid decision-making. Traditional manual operation simply could not burrow through this mountain of data to realize the benefits. It was time to automate, and SMUD chose STI's geospatial and visual analytics technology.

## Grid planning, beyond

The software platform visualizes and coordinates data from more than 30 different systems. A large "electronic wall map" in SMUD's Distribution Operations Center displays the synthesized data as a common operational view of grid and asset health, weather, wind and fire conditions and power supply and demand, to name a few.

Managers and operators are now able to respond more quickly to outages, rapidly develop switching plans and make more informed decisions regarding equipment maintenance and investments. "This gives our operations staff the view they need of what's happening on the grid, right down to zeroing in on cameras on substations or loading on individual feeders," said Parks.

In addition to tying together

many utility operations, the platform includes data links with state and federal firefighting agencies and water districts for coordinating emergency responses to fires and floods. It also pulls weather data from the National Oceanic and Atmospheric Administration and the utility's fifteen weather stations. Managers can turn data on temperature forecasts into predictions of coming peak power demand, or transform wind-speed readings into dynamic line ratings.

Now that situational intelligence technology has proven its value in grid operations, other SMUD departments are showing an interest. The utility has launched a second phase of the system to meet some of these demands. Geospatial and visual analytics could be valuable for neighborhood design and transformer loading, customer demographics for new programs, vegetation analysis or understanding the impact of electric vehicles on single circuits. "Some of the departments have found uses for it that we didn't anticipate, while some of the planned uses were less effective than we expected," Parks acknowledged.

*See GREENTECH MEDIA, page 6*

# DEPARTMENT OF INTERIOR INVESTS \$50 MILLION IN WATER CONSERVATION PROJECTS IN DROUGHT-STRICKEN WEST

*Interior's WaterSMART Program to Support 64 Projects in 12 States*

**A**s part of the Obama Administration's continued effort to bring relief to western communities suffering from the historic drought, U.S. Secretary of the Interior Sally Jewell announced on May 20 that Interior's Bureau of Reclamation will invest nearly \$50 million to improve water efficiency and conservation in California and 11 other western states.

Joined by officials from the Los Angeles Department of Water and Power (LADWP) and the Bureau of Reclamation, Secretary Jewell made the funding announcement at the Donald C. Tillman Water Reclamation Plant in Van Nuys, California. The plant, which purifies millions of gallons of wastewater each day, was a fitting setting to launch federal-state partnerships dedicated to a more sustainable and resilient water future.

Through the WaterSMART Program, Reclamation is providing funding for water conservation improvements and water reuse projects across the West. More than \$24 million in grants is being invested in 50 water and energy-efficiency projects in 12 western states. Seven water reclamation and reuse projects in California will receive more than \$23 million and nearly \$2 million will fund seven water reclamation and reuse feasibility studies in California and Texas.

WaterSMART is the Department of the Interior's sustainable water initiative. Since it was established in 2010, the initiative has provided about \$250 million in competitively-awarded funding to non-federal partners, including tribes, water districts, municipalities and universities. These investments have conserved enough water to meet the needs of more than 3.8 million people. Every acre-foot of conserved water delivered means that an equivalent amount of existing supplies is available for other uses.



**Secretary of the Interior Sally Jewell (at podium) held a press conference at the Donald C. Tillman Water Reclamation Plant and Japanese Garden in Van Nuys, California, to announce federal funding for water and energy conservation projects. (Left to right) L.A. Sanitation Director Enrique C. Zaldivar, P.E., Bureau of Reclamation Commissioner Estevan López and LADWP Chief Sustainability and Economic Development Officer Nancy Sutley joined Secretary Jewell for the announcement. (Photo by US Bureau of Reclamation)**

WaterSMART water and energy-efficiency grants can be used for projects that conserve and use water more efficiently, increase the use of renewable energy, improve energy efficiency, benefit endangered and threatened species, facilitate water markets, carry out activities to address climate-related impacts on water or prevent any

water-related crisis or conflict. The 50 projects announced in Los Angeles will be leveraged with at least 50 percent non-federal funding for a total of \$133 million in improvements over the next two to three years. For a complete description of the 50 projects, visit the WaterSMART Water and Energy Efficiency grant website. ⚡



## DOWNLOAD THE UPDATED COOLING TIP SHEET, BILL STUFFER

Cooling season is once again upon us, and yours may already be shifting into high gear, so there is no time like the present to remind your consumers about the importance of maintaining their air conditioners.dog-fan

The 2015 Tip Sheet: Cooling System Maintenance, and its “Mini-me” bill stuffer are ready to be downloaded, imprinted with your logo and given to your customers before they call to complain about high summer cooling bills. Both handouts break down the simple steps that keep air conditioners humming efficiently, and offer operating tips to make sure a cooling system is not fighting an uphill battle.

The full-size sheet includes websites for those who might want to do a little more research on efficient cooling. That makes it a good handout for customer education events. The bill stuffer provides the same information, minus the online resources, in the perfect size to fit into a business envelope. Customers can post it on their refrigerators, near their cooling systems or in home workshops. You



might also print up a batch of stuffers for cooling contractors and dealers to hand out to their customers.

We designed The Tip Sheet so you can set it up with your own logo, or send Energy Services an electronic version of your logo and we'll create a template for you. Then you can print

the quantity you need in-house, or take it to your local quick printer for more paper choices. Either way, The Tip Sheet and bill stuffer give you an easy, cost-effective way to talk to your customers about cooling efficiency, and to help you with summer load control. ⚡

### REAP Funds *from page 3*

An economically healthier community is always good for a public-power utility. More directly, moving some of its larger customers from fossil fuel to electric power adds to NPPD's customer base. Other REAP projects, such as solar grain dryers and building envelope upgrades for small businesses, promise future benefits for peak load control while keeping the local economy strong.

Rose urges customers to contact their local USDA Rural Development offices to get their applications as soon as possible. Power providers may help support applications by providing energy audits. Also, keep in mind that REAP is a grant rather than a rebate, advises Rose. “Complete the application before you start the project.” ⚡

### Greentech Media *from page 4*

#### Stakeholders select awardees

Grid Edge 20 recognizes vision and innovation in the energy services and utility industries. A network of energy industry stakeholders, including the team of analysts at GreenTech Media Research nominate and vote on the awardees. Final award recipients were selected with input from Greentech Media's Grid Edge Executive Council. Since its launch in the fall of 2013, the council has grown to more than 75 member companies. Duke Energy, Embertec, Enphase Energy, Electric Power Research Institute, SunEdison and 3M are the newest members.

Many of the awardees will be attending or presenting at Grid Edge Live 2015, June 23-25, in San Diego. The conference covers issues surrounding grid modernization and customer and business model transformation. ⚡

## NOMINATIONS OPEN FOR 3IAWARDS TO RECOGNIZE INNOVATION, INGENUITY, INSPIRATION

**T**he Interstate Renewable Energy Council (IREC) is calling for nominees for the IREC 3iAwards. The prestigious annual award searches the nation for innovative people, projects and programs that promote and accelerate the sustainable growth of clean energy. The IREC 3iAwards honor innovation, ingenuity and inspiration from the nation's best in both renewable energy and energy efficiency. 3iAwards

"Every year IREC recognizes those who have creatively developed new approaches to advancing clean energy, because changing the status quo requires determination, innovation and persistence," said IREC Board Chair David Warner. "With these awards, we honor the people who inspire us with exemplary projects and programs that increase renewable energy use and promote energy efficiency. And we encourage others to build on their successes."

For the second year, the selection of IREC's award winners in several categories will be in the hands of the public, with open voting dates to be announced. The opportunity for a variety of stakeholders and the community at large to weigh in brings even greater awareness and acknowledgement of the applicants and awardees. **All applications must be received online by June 26, 2015.**

IREC recognizes that renewable energy and energy efficiency play equally crucial roles in achieving a sustainable future.



Traditionally, government, energy industries and educational systems view them separately, with little collaboration between programs. However, IREC's awards are inclusive, with a specific award category for "Closing the Divide." This award highlights innovative examples of initiatives that help close the divide between energy efficiency and renewable energy. Other nomination categories are:

- Community Renewables Project of the Year
- State and Local Government Initiative of the Year
- IREC Accredited Clean Energy Training Provider of the Year
- IREC Certified Clean Energy Trainer of the Year

Applications from or on behalf of extraordinary people, projects and programs in the clean energy arena will be accepted online through June 26 in all five categories.

The 3iAwards are made possible by the generous support of IREC's corporate sponsors. For more information about sponsorship opportunities, contact Larry Sherwood at 518-621-7379. ⚡

# EFFICIENT CLOTHES DRYER TOPIC OF FREE WEBINAR

**June 10, 2015**

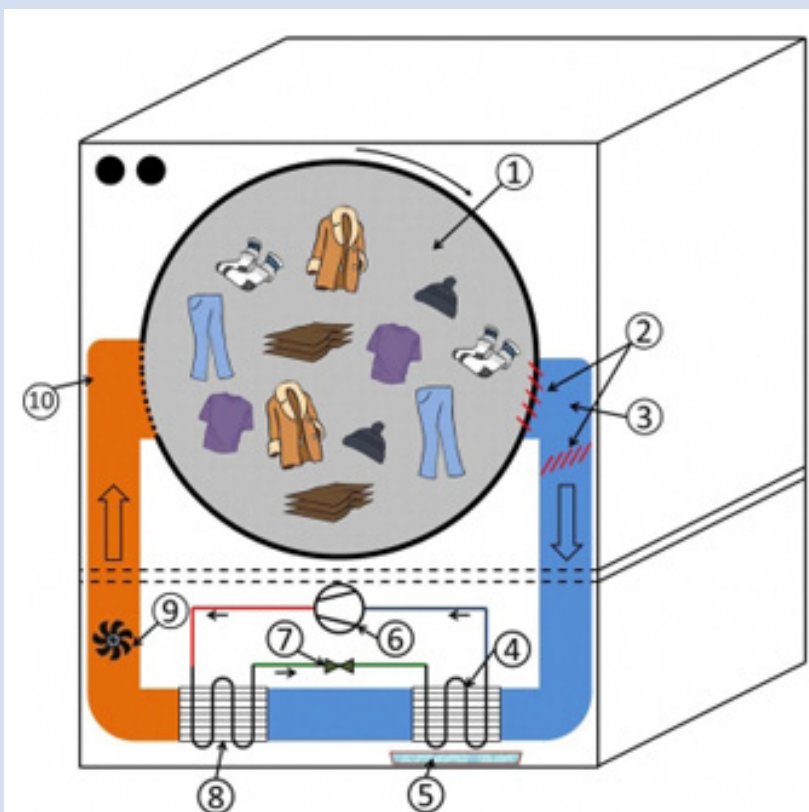
**1 p.m. MDT**

**J**oin the Washington State University Energy Program on Wednesday, June 10, at 1:00 p.m. Mountain Time, for the Emerging Technologies Showcase webinar, Heat Pump Clothes Dryers – Will Life Ever Be the Same Again?

Residential clothes dryers are not known for their efficiency—in the U.S., these appliances consume 4 percent of our annual electricity use. Worse yet, 20 to 25 percent of their heat disappears up the dryer vent. No wonder clothes dryers are not included in the federal government's Energy Star program. However, recent advances in dryer technology may be poised to change all that.

This webinar explores basic design types of energy-saving clothes dryers and the technologies that make them more efficient than current models. Lab and field testing results will be discussed in depth, with special focus on the importance of testing dryers on actual wet laundry and in different settings. Utilities can learn about the energy savings, cost and near-term availability of the appliances, as well as ideas for providing consumer guidance and financial support to interested customers.

A question-and-answer session follows the presentation. All webinars are recorded and



**Schematics of a heat pump clothes dryer: 1. drum; 2. filter; 3. warm, humid air; 4. evaporator; 5. condensate; 6. compressor; 7. expansion device; 8. condenser; 9. blower; 10. hot dry air. (Artwork by Oak Ridge National Laboratory)**

available from Energy Efficiency Emerging Technologies (E3T) and Conduit energy efficiency forum.

Register today for this free event, or contact E3T for more information.

Bonneville Power Administration sponsors this monthly webinar series with support from Western. Get latest information about promising energy-efficiency technologies and practices that BPA is considering for future research. ⚡